INDIVIDUAL DIFFERENCES OF ENLISTED PERSONNEL IN THE U.S. NAVY

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A THESIS
SUBMITTED TO THE
SCHOOL OF EDUCATION AND
THE COMMITTEE ON GRADUATE STUDY
OF
LELAND STANFORD JUNIOR UNIVERSITY
IN PARTIAL FULFILLMENT
OF THE REQUIREMENTS
FOR THE DEGREE
OF
MASTER OF ARTS

By
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Lieutenant
U. S. Navy
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By
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July, 1948

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ACKNOWLEDGMENTS

The author wishes to express his appreciation to the many members of the faculty of the School of Education, Stanford University, and especially to Dr. A. John Bartky, Dean of the School of Education, and Dr. Arthur C. Hearn, for their invaluable assistance in the preparation of this thesis. My thanks and gratitude for aid and encouragement are expressed, also, to Dr. E. G. Brundage, Technical Head, Classification and Field Research Activity Bureau of Naval Personnel, and his assistant, Mr. Joseph Pataky.

PREFACE

The many dissimilarities that are evident among individuals have become the increasing concern of leaders in industry and in the military services. The problems of selection and placement, of training, and especially those concerned with obtaining the willing cooperation of the man in the job depend for their solution upon an understanding of the nature and extent of the differences that exist between one person and another. Variation in intelligence, interests and abilities; in attitudes, personality, and sense of values; in size, strength, and dexterity; - each of these characteristics is different in every individual; all combine and interact to form, in every living person, a unique member of the species. Work that is satisfying for one may be intolerable for another; instruction that is effective for some may bore a few and mystify still others; working conditions may elicit from a group reactions that vary from approval to violent objection. The gradual discovery of the origins and nature of these variations in the individual through research and study has made understanding of their implications possible. Through understanding and recognition of them have come the greatest

advances in the techniques of personnel administration in both industry and the services.

This dissertation will concern itself with the problems of individual differences of enlisted personnel in the U. S. Navy. The purpose is to bring an understanding of the subject and its many implications to the junior naval officer and prospective naval officer whose duties are, or will be, so closely involved with enlisted personnel in an administrative and training capacity.

The naval service, more than industry, or perhaps, the army and air force, needs a special emphasis on recognition of the individuality of its servicemen. Naval tradition fosters attitudes and terminology that, together with the necessarily regimented life aboard ship, tend to minimize this recognition. The atmosphere created in most naval situations is one which is in constant conflict with the common desire to feel and be considered as a special and distinct person. On the officer there is the effect of dulling his realization and perception of this feeling on the part of his men. It is hoped that by this examination of the broad field of individual differences, with special reference to the enlisted personnel of the navy, an awareness of the importance of this factor in effective administration and leadership will be furthered in the naval service.

Since most of the findings and truths about human variability have been discovered in the studies of psychology and sociology, this dissertation will be, in the larger part, a synthesis of those studies which concentrate on the particular field of individual differences. Sources include texts and lecture material covered in formal classes at Stanford University, applicable writings and reports in professional journals, and material from books which deal with particular aspects of the problem. In order to make the presentation more applicable to the naval service, written directives and policies of the Navy Department are referred to and opinions and ideas drawn from the writer's own naval experience.

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INTRODUCTION

Individuals differ with respect to every human attribute that can be identified. They differ, of course, in physical dimensions. Knowing about their differences in height, weight, length of arm, etc., becomes important in fitting clothes or designing machinery for them to operate. They differ in keenness with which their senses, such as hearing and sight, function. How they differ becomes important in selecting men for duties primarily dependent upon acuteness of these senses. Men differ in the proficiency with which their muscles work, causing some to be able to learn intricate muscular coordination while others are muscular incompetents. Such differences are important in selecting men for pilot training or radio operators. Men differ in intellectual functions. Some can be classed as highly intelligent, some as geniuses, and others as morons. Such differences have obvious importance for a wide variety of practical considerations. The patterning and strengths of the basic physiological needs of human beings - hunger, thirst, sex, etc., vary widely, as do those needs which they acquire through social contact and training - the need for prestige, and human companionship. These are

important in explaining their behavior and attitudes. Men differ in personality, the overall pattern of the foregoing abilities and traits. Such differences play a central role in nearly all human relations.

A thorough treatment of any one of the aspects of individual differences mentioned would prove too extensive for the purpose of this dissertation. Books and studies representing a history of effort have been written on them. Yet to ignore some of these sources of differences would be to fail in providing the understanding of the whole subject that it is desired to impart. To present the facts and problems involved in human differences in a form and with the completeness necessary to accomplish the purpose of this paper requires an examination of the particular problem that is to be met.

The naval officer, though commonly envisioned as a leader of a group - a ship's crew, aircraft squadron, or fleet, will spend a large amount of his time dealing not with groups, but with individuals. He is called upon to decide what individuals to transfer, what individuals to select for specific jobs, on what individuals to promote or recommend for specific training. He will have to deal with the personal problems of individuals; their maladjustments with others, their domestic troubles, and their infractions of regulations. His value to the naval service will largely depend upon his ability to understand what makes individuals as they are. Good leadership depends on good handling of

individuals to a greater degree than is commonly believed.

Understanding of the human individual requires a knowledge of the factors that govern his development - both mental and physical, as well as his emotional adjustment and growth. The factors of heredity, cultural background, social environment, economic status, and educational training are a few of those which shape the individual and determine his behavior, attitudes, and potentialities. Scientists in the fields of physiology, psychology, and sociology have contributed knowledge and insight into the varied effects of these factors on individual development. Familiarity with the findings of these studies would provide the naval officer with an understanding of the individual that can be acquired otherwise only through long and well utilized experience with leading and administering people. With so few officers having had formal education in these sciences there is a need for a source of information which summarizes the basic facts and conclusions found in these studies, so organized that their application to personnel administration and leadership in the navy is apparent.

The problem then, is first to provide a general overview of what the several scientific fields have found to be influential in producing and explaining individual differences. This information applies to the total population - explaining differences through the full range found in all mankind; intellectually, from imbeciles to geniuses; physically, from dwarfs to giants; emotionally, from

psychotics to psychiatrists.

Secondly there is the problem of applying this knowledge to the particular population comprised of enlisted personnel. Here it is a selected population that is to be examined. Measured minimums of physical size, intellectual ability and emotional stability are set which exclude the less favored section of the population from membership. Social mores and competition from more rewarding fields tend to limit the numbers who enter from the upper regions of the distribution. It is the range of differences possessed by those found in this middle group which needs to be understood, and evaluated. Information is needed about this selected section of men that can be analyzed in the light of what has been learned to arrive at some estimate of what varieties of behavior, attitudes, and potentialities can be expected among naval enlisted men.

With the problem resolved into needs for information in these areas this dissertation is organized accordingly as follows:

The first chapter is a summarization of what has been learned about the origins, causes, and extent of individual differences in the total population.

The second chapter attempts an evaluation of the enlisted personnel of the U. S. Navy as a group from limited data available on the present enlisted population.

It is appropriate here to establish the limits of this dissertation in each of these areas and to indicate the

approach to be taken in covering them adequately.

To begin, the following terms are given the definition that establishes their meaning as used by the writer.

Individual differences, as a term applied to whole individuals, refers to all the ways in which people can differ one from another. These many differences can, for purposes of simplification, be grouped into a few categories. In this paper they are grouped under physical differences, intelligence differences, performance differences, social differences, and personality differences.

Physical differences include variations in physical dimensions and physical characteristics.

Intelligence differences refer to those behaviors and abilities which intelligence tests attempt to measure, such as the ability to solve problems, to learn rapidly, to grasp broad and abstract facts and the ability to use and understand concepts.

Performance differences refer to measurable or observable differences in man's actual or potential achievement. The related human traits of aptitude and ability are included under this title.

Social differences include those variations in habits, attitudes and values, characteristic of an individual which are shaped by his living experiences within a particular group.

Personality differences encompass the sum total effect of all individual traits and qualities which distinguish

one person from another.

Chapter I is an attempt to collect on a few pages the more important facts and conclusions in the broad field of individual differences. It seeks to provide the background of knowledge of the factors in human development that determine and shape man's behavior and performance. This does not pretend to be a complete or thorough treatment of the subject. The criteria used in dealing with each aspect of human differences are, "Does this give a true picture of this type of human difference?" and "Can the information be applied to the administration of personnel?" With these criteria in mind the subject of individual differences will be covered under the following headings:

1. The causes of differences - Why knowledge of the causes of differences is important. - A summary of the conclusions on the problems of heredity and environment in development.
2. The Nature of Individual Differences - The distribution of human traits found in the total population - The extent of differences between individuals - Variations within the individual - Relationships among abilities within the individual - Deviations from the normal distribution of traits.
3. The Measurement of Individual Differences - The types and characteristics of tests -

Statistical concepts relating to tests.

4. *Physical differences* - Range of the physical dimensions of height and weight in the population - Variations in rate of growth - Differences in physical characteristics between nationalities and selected population groups.
5. *Differences in intelligence* - What intelligence is - How intelligence is measured - Variations in intelligence with age - Intelligence differences between individuals - Variations of intelligence within the individual.
6. *Performance differences* - The relationship of aptitude and ability to performance - Differences in kinds and amount of aptitudes among individuals - Measurement of aptitudes, abilities, and performance.
7. *Social differences* - Differences arising out of conditions common to groups within the population, such as those groups differentiated by economic status, religion, race, nationality, and geographic location.
8. *Personality differences* - The construct of needs in determining behavior - The classification of traits which describe personality differences - Explanation of introversion,

extroversion, social intelligence and emotional traits.

Chapter 2 is a factual analysis of enlisted personnel with respect to their measurable characteristics and their personal history data. The following information is presented in statistical form:

1. Age distribution of recruits
2. Distribution of educational achievement
3. Test battery results
    - (a) General classification test
    - (b) Arithmetical ability
    - (c) Mechanical ability
    - (d) Clerical aptitude
4. Breakdown by rural and urban sources of recruits
5. Breakdown of sources by geographical sections

From the above data conclusions are drawn in the light of differences in overall traits and abilities that may be expected within the selected portion of the total population that naval enlisted personnel comprise.

In summary it is attempted to indicate, where justified, how the data on any individual can be used to understand and predict his behavior, attitudes, and performance in the situations met in the naval service.

The sources of material and information on which this dissertation is based are varied. The general overview

of the subject of individual differences offered in the first chapter is derived almost entirely from the writings of recognized authorities in the fields of psychology and sociology. Those studies which have concentrated particularly on individual variations and their importance in explaining behavior and potentialities have been used as primary sources. The concluding chapter, which is concerned with naval personnel, is based on data and information from the Navy Department. The Research Section of the Bureau of Naval Personnel has provided the data on the enlisted population. Throughout the dissertation opinions and conclusions based on the writer's own experience in the naval service are offered, supported wherever possible by the opinions of more expert authors.

It is hoped that by approaching the problem in this manner - by presenting first the academic and theoretical findings in the field of individual differences and following this with the practical application of these findings to the particular segment of the comprised group of enlisted men, the reader will be furnished with a single source of information that approximates in effectiveness the more detailed treatment available in other scattered sources. Should this dissertation accomplish in some part this aim the naval service will be benefited.

CHAPTER I

INDIVIDUAL DIFFERENCES IN THE TOTAL POPULATION

The Causes of Differences

Knowing that organisms of the same species differ in some respects one from another is of little help in understanding or explaining these differences unless something is known about what causes them. This is as true for human organisms as it is for such baser forms of life as, for instance, oysters.

An important difference found to exist among oysters was that some contained pearls and others didn't. No doubt early pearl divers held the view that some oysters were born with the ability to produce pearls while others were not. The knowledge that it was an irritant from outside the organism that caused pearls to form - that environment, not heredity, was responsible for the "pearl trait" in oysters, is now the basis for the culture-pearl industry in Japan.

Humans are more complex organisms than oysters. They differ in infinitely more ways. Knowing whether certain differentiating traits are the result of heredity or

of environment would be of far greater value to society than the discovery of the simple truth about pearls. Unfortunately, with the human family there are few traits that can be definitely traced to one or the other of these causes. Gilliland and Clark introduce an exhaustive study of this problem by stating:

> "All differences between persons are due to varying combinations of heredity and environment--to different combinations of nature and nurture, as is sometimes said. Although these causes seem easy enough to define, tracing their influences in particular instances is by no means easy, and as a result, many opinions are held as to the relative influence of each."[1]

Such extremes of opinions exist as that of the modern biologist, Davenport, who on the side of heredity, believes that such things as personality traits, mentality, and even criminality are inherited according to certain laws. On the side of environment as the determining cause of traits there is a well known sociologist who said:

> "Give me a dozen healthy infants, well formed, and my own special world to bring them up in and I'll guarantee to take any one at random and train him to become any type of specialist I might select---doctor, lawyer, artist, merchant-chief, and yes even beggar-man and thief, regardless of his talents, penchants, tendencies, abilities, vocations and race of his ancestors."[2]

Between these two opposed points of view is the larger group of scientists who believe that both nature and nurture play

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[1] A. R. Gilliland and E. L. Clark, Psychology of Individual Differences, New York, Prentice Hall, 1939, p. 51.

[2] Watson, J. L. B., Behaviorism, New York, Norton, 1930, p. 104, quoted in A. R. Gilliland and E. L. Clark, op. cit., p. 27.

a significant part in the physical and mental structure of man.

A look at the mechanics of inheritance and an explanation of what environment is will help to show why such disparity of opinion exists.

> "Inheritance is controlled through the germ cell. Although these cells compose but a small part of the body, it is they that determine the courses of heredity. These germ cells contain within them a substance which at one stage of cell development arranges itself into rows of easily colored material, called chromosomes. These chromosomes are arranged in pairs, and there are twenty-four pairs, or forty-eight of them, in the human germ cell. However, at one period during ripening, or maturation of the germ cells, one of each pair of chromosomes in both male cell and female cell is discarded, leaving only twenty-four chromosomes. These cells with half the usual number of chromosomes are the ones that unite at conception. Chance seems to determine which one of each pair of chromosomes is used to unite with those from the opposite sex to form a new cell. This new cell is the basis of a new human being and has the normal twenty-four pairs of chromosomes."
>
> "Characterics are not inherited through the chromosomes as such but by smaller units called genes, of which the chromosomes are composed. Any unit character is produced by the effect of a pair of genes, one from each of a pair of chromosomes--that is one from each parent. For example, in snapdragons the color of the flower is determined by two genes. One of these genes comes from one parent and one from the other. But they both have to play their part in determining the color of the flower of the daughter plant."[1]

Characteristics transmitted by the genes do not necessarily come directly from the parents. Some will be hidden for a generation or two. The Mendelian laws of inheritance say

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[1] Gilliland and Clark, *op. cit.*, p. 39.

that some genes carry recessive traits that will not appear unless paired, by chance, with other genes transmitting the same trait. Other genes carry dominant traits - they will transmit their particular characteristic no matter what genes they pair with. Brown eyes, for instance, are dominant; blue eyes recessive. Curly hair is dominant over straight hair, dark skin over light skin, dark hair over blonde hair, right handedness over left handedness. The recessive traits may be dormant for many generations only to crop up when chance has paired the right kind of genes.

Many of the more complex traits are undoubtedly determined to a large extent by the interaction of genes. Investigation of such characteristics as intelligence, rate of muscular reaction, musical aptitude and others has produced evidence that limits, at least, to degree of development, are set by the mechanism of inheritance. So pervasive, however, are the effects of environment that only in extreme manifestations of trait behavior, can it be laid to the cause of heredity exclusively.

Environment is composed of all the forces in life that affect the individual. Man's country, his town, his neighborhood, his home, his place in the family, his church, his work, his education, his friends - all go to make up his environment. The food he eats, the clothes he wears and the illnesses or injuries he has are environmental influences.

There are no two identical environments. Within one family the environment varies from person to person. One

girl in a family of boys; the oldest, youngest, or middle child - everyone has an environment all his own.

What an individual's particular environment is effects the development of whatever inborn traits he may possess. Poor health or nourishment affects bodily growth as well as personality and attitudes. Experiences provided in his environment determine his interests and the development of certain abilities over others. The degree of intellectual stimulation he is exposed to determines to a large extent how much he will learn. As one author explains the effect of environment on learning:

> "It is no doubt true that the capacity to learn is inherited. That is, nature sets a starting point as well as the limits of attainment. There are great individual differences in the point at which learning begins, and these differences are often increased by training. We also vary not only in how much we can learn but in what we learn. Education, both formal and informal, must be considered. The whole gamut of information, habits, customs, and skills, as well as emotional attitudes, come within the scope of the influence of the environment on the individual."[1]

It is clear that what a person is, especially at maturity, is largely determined by his environment.

Another author sums up the problem of nature vs. nurture as follows:

> "Thus, while granting the initial major importance of genetic constitutions, one must appreciate the fact that environmental conditions are integral factors in the developmental process, and that they are, therefore, of extreme practical importance. Nature and

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[1] *Ibid.*, p. 51.

> nurture should no longer be set against each other, for either one is conceivable only in terms of the other. That is to say, heredity and environment are mutually inclusive, since innate traits are capable of development and expression only in terms of environment, and environmental influences can act only together with the genetic basis of individuality."[1]

The causes of individual differences then are heredity and environment - debatable and varying combinations of each. The question is in order "Of what value is this knowledge to a naval officer faced with the full grown products of these causes?" Two answers at least can be made to this question. First the knowledge should lessen the common tendency to consider traits as immutable results of heredity - it should at least bring to mind the question "What makes this man as he is?" Secondly, this knowledge provides the basis for the understanding of the more important and more pertinent variations among individuals which will be discussed in the following pages.

The Distribution of Differences

Knowing something of the unpredictable and complex factors that are involved in the development of human beings should be of help in understanding how the various charactemistics and traits of individuals are found to be distributed throughout the population. With chance governing to so great a degree the hereditary factors possessed by an individual,

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[1] Frank S. Freeman, Individual Differences, Henry Holt and Company, New York, 1934, p. 142.

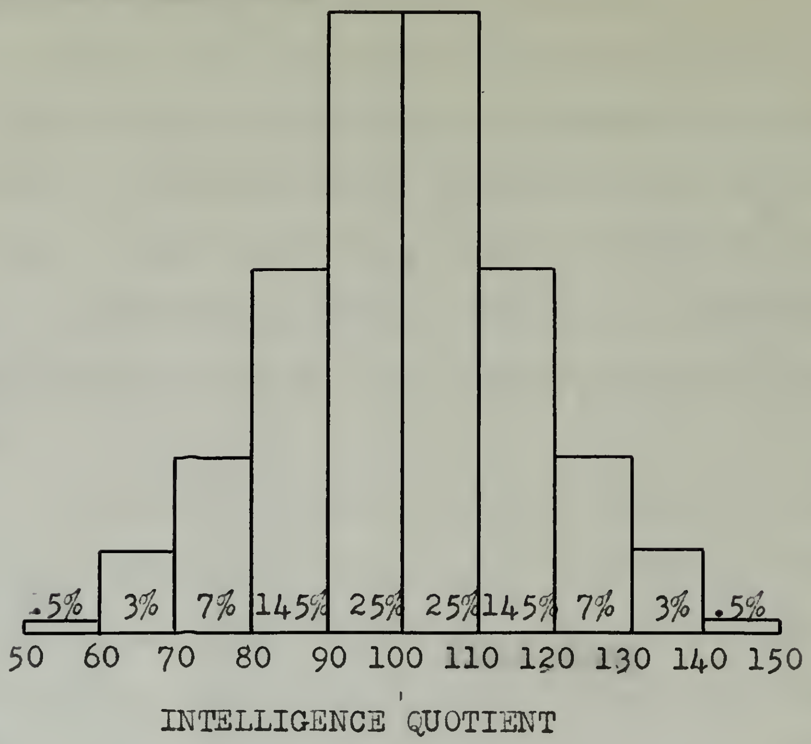
and chance again determining the character and influence of environmental forces shaping these inherited potentialities, it should be doubted that any particular individual could be enough like any other to be classed as a "type". It would be reasonable to assume that, when persons in general are considered, there would be found instead of distinct and opposed types, a continuous gradation of traits from one extreme to the other. Scientific data gathered on nearly every trait that can be mentioned has shown the latter assumption to be true.

Any measured trait has been found to be distributed normally in the general population. Whether the traits measured are physical characteristics, sensory capacities, mental traits, muscular co-ordination, or personality traits, the manner in which each is distributed in the population follows the same kind of pattern.

As an illustration, the measured intelligence quotients of 3184 children are used. Figure 1(a) shows how they are distributed. Scores are grouped by increments of 10, with the height of each column representing the number of children who made scores within the particular 10 point range. The percentages of the total number making scores in the same range are indicated.

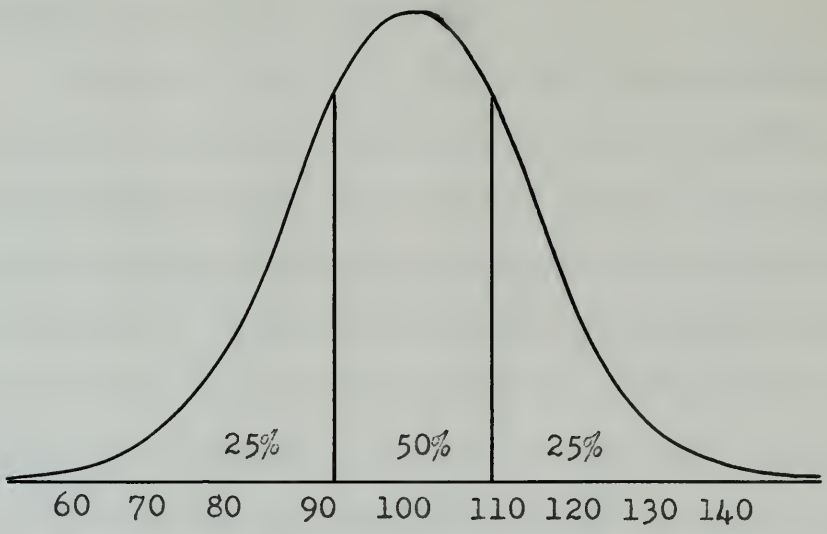
Note that half of this group made scores in the middle range. These are the average and near average individuals. Scores above and below the middle range occur less and less frequently so that the columns become progressively

Figure 1(a)--Distribution of Intelligence in 3184 Children.



Norman R. F. Maier, Psychology In Industry, Houghton Mifflin Company, San Francisco, 1946, p. 111

Figure 1(b)--Normal Distribution Curve



Ibid. p. 112

shorter as the two extremes are approached.

Figure 1(b) is the same data plotted as a smooth curve. The height of the curve represents the frequency with which the various scores plotted on the base line occurred. This is the theoretical normal distribution curve for individual differences. This curve has the characteristic of being symmetrical about the center, which is the average or mean.

This curve becomes important when it is desired to compare individuals according to measured traits. The fact that a man makes a score on a navy General Classification Test of 63 does not have much meaning, but the fact that this score is bettered by only ten per cent of the enlisted population shows that this man is superior as measured by this particular test. The truth illustrated by the normal curve is that human ability is a relative matter.

Variations Between Individuals

Another important fact about the pattern of human differences is that the degree of variation between individuals--the total spread between the lowest and highest measurement of any trait, differs markedly for different characteristics. Thus head diameters of adults vary only from about six and one-half inches to something less than eight inches - a spread of less than one and one-half inches, whereas the weights of individuals vary from less than eighty pounds to over four hundred, in a few extreme cases - a spread of over three hundred pounds. This is as true of mental,

emotional or sensory abilities as it is of physical differences. Measures of different human characteristics are found to be spread over broad or narrow base lines; this does not alter the fact that the curve is symmetrical about the middle point.

Figure 3 illustrates how the ability to produce may be distributed in three different occupations.

Complex abilities produce a greater spread in a distribution curve than do simple ones. When there is found to be a great difference between the poorest and best performer in a particular field it is important to know where a given individual is located on the curve – the desire is to obtain the services of those on the high side of the middle point and eliminate those who fall on the low side. Where the spread is not great – where the performance of the poorest individual is only slightly below that of the best, the knowledge of any individual's proficiency is of less importance. To be able to determine the relative importance of different traits, then, it is necessary to know what the range is.

Variations Within Individuals.

A basic and important fact about traits and abilities of people is that they are possessed in varying degrees by any one individual. A talented musician may be found to test low in mathematical ability; an excellent typist may lack the mechanical ability required for machine shop work; a top construction engineer may be the emotionally unstable

symbolic processes."[1] The most understandable way to look at intelligence is that it is a form of behavior. On this plane intelligence can be seen as a variety of behaviors such as rapid learning, rapid solving of problems, and ease in adjustment to new situations. An examination of intelligence tests reveals more specific areas of behavior that are thought to require intelligence; the manipulation of numbers, the perceiving of spacial relations, the definition of abstract words, the memorizing of material, the finding of similarities and differences among objects or pictures of objects. These are the behaviors called for in intelligence tests. These behaviors are thought to test or utilize certain underlying abilities. Thurstone divided intelligence into seven primary areas of mental ability. These are: word fluency, visualizing, numerical ability, memory, speed in perceiving spacial relations, insight, and deductive ability. Most intelligence tests follow Thurstone's analysis of what makes up the character of intelligence. They attempt to sample his different abilities and come out with an estimate of overall mental ability.

Measuring Intelligence

Measurements of intelligence for comparative purposes are expressed most frequently in three ways. The first and most common is the well known I.Q. (Intelligence quotient); another is the percentile score, and the third is

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[1] Munn, Norman Leslie, *Psychology*, Houghton Mifflin Company, Boston, 1946, p. 410.

the standard score.

The I.Q. as a measurement of intelligence is based on the assumption that the ability to do the tasks required in an intelligence test increases with age up to a certain point. An eight year old, for example, can be expected to perform better than a six year old. To find out what performance can be expected of an eight year old the average performance of a large representative (unselected) group of eight year old children must be determined. The comparison of a child's performance with the average performances of scores of children of different age groups determines his mental age. If a ten year old performs mentally as well as the "average" ten year old, he has a mental age of ten years. If he performs as well as the average twelve year old, he has a mental age of twelve years. The I.Q. is obtained by comparing a child's mental age with his actual or chronological age. Thus, in the latter case, the child of ten with a mental age of twelve would have an I.Q. of 12/10 or 1.2. Usually this number is multiplied by 100 so as to be expressed in whole numbers, as 120. The I.Q. as a measurement of intelligence depends upon determining mental ages of individuals by comparing their performances with the average performances of various age groups.

The percentile score, as a measure of intelligence, is merely a means of giving the "standing" of any score made on a test with all other scores that could be expected from the population tested. Thus a percentile score of seventy-

five means that the test, or "raw" score made, regardless of its numerical size, was better than seventy-five per cent of all other raw-scores that have been or would be made by testees drawn from this particular population. For a percentile score to have any significance, tests must be "standardized" with a fairly large sample of the population for which the test was designed. The population may be eighth grade children, high school seniors, college freshmen, navy recruits, or the total population. Some tests are designed for only one such population while others can serve all groups with standardization data computed on each of the separate populations. In any case there must be a reference, or conversion table computed for each group for changing raw scores into percentile scores.

The standard score is a means of equating the scores on different tests so that they mean the same thing. It is based on the mathematical characteristics of the normal distribution curve. Thus standard scores of 63 on a test of intelligence and on a test in mechanical ability both place an individual at the same point on the distribution curve. From the standard scores percentile scores can be derived directly from the same conversion table.

Variations with age.

Mental ability, the quality that intelligence tests attempt to measure, tends to remain constant in an individual after the age of about fifteen. Mental age for the average adult is about sixteen or seventeen years. This

merely means an adult's ability to solve new or novel situations does not increase beyond that age. He can continue to absorb new knowledge and learn practical solutions to new problems for as long as he has the motivation to do so but he does it with essentially the same mental equipment that he had when he was a mere youth. This fact can be proved again and again by exposing adults and adolescents to tests which require solution of problems that both are equally unfamiliar with. Actually in such a situation the adolescent has an advantage - mental ability, rather than remaining perfectly constant, tends to decrease slowly with age. Figure 10 is a hypothetical curve of intelligence growth and decline which illustrates this.

It can be seen that intelligence expressed as an I.Q. would be rather meaningless for a man of forty, for instance, if it were computed in the normal way. His tested mental age, remaining at about seventeen, would give him an I.Q. of about 40, a rating down in the imbecile's range. By intricate assumptions and computations, however, the I.Q. of adults can be determined, and this measurement is still the most popular means of expressing a man's mental ability. Percentile scores and standard scores are used mostly for evaluating performance on tests within particular population groups, such as college students or men of the several services.

Intelligence Differences Between Individuals.

Intelligence, like any other human trait, is distributed in the population according to the normal distribution

curve. Few people have extremely high or extremely low I.Q.'s while most people score around the average I.Q. of 100. For an I.Q. to have meaning a relationship with some descriptive terms must be established. One way is to connect ranges of I.Q. scores with some recognizable mental terminology. Table I places such qualities as idiocy, imbecility, normality, and genius within certain I.Q. ranges.

Table II does the same thing with academic and vocational possibilities.

These tables provide a means for rough classification and estimation of potentiality only. It cannot be said that an I.Q. of 140, for example, automatically qualifies an individual for graduate work in a university or for work at the professional level. Achievement depends on more than native endowment. Such factors as opportunity, motivation, and emotional adjustment play a part. The achievement levels shown in Table II are only possibilities based on the measurement of mental ability of many individuals who had attained these positions. The information can, however, justify such conclusions that it would be unlikely for a man with an I.Q. of 70 to succeed in Electronic Technician's School and that it would be a waste of ability to confine a man with an I.Q. of 130 to a job normally assigned a new seaman.

TABLE I

LEVELS OF INTELLIGENCE IN TERMS OF STANFORD-BINET I.Q. RANGES.[1]

Idiot	0- 25
Imbecile	25- 50
Moron	50- 70
Borderline	70- 80
Low Normal	80- 90
Normal	90-110
Superior	110-120
Very Superior	120-140
Near Genius	140 and over

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[1] Munn, *op. cit.*

TABLE II

CLASSIFICATION OF GENERAL ABILITY AS MEASURED BY THE REVISED STANFORD-BINET SCALE, WITH APPROXIMATE ACADEMIC AND VOCATIONAL POSSIBILITIES OF EACH GROUP[2]

I.Q.	Adult M.A. (years & months)	Classification	Academic Possibilities	Vocational Possibilities
140 & up	21 and up	Very superior	Graduate	Professional, executive
120-139	18-0 to 20-11	Superior	Technical	Professional, technical
110-119	16-6 to 17-11	H. Average	College	Technical business
90-109	13-6 to 16-5	Average	H. School	Clerical, skilled
80- 89	12-0 to 13-5	Low Average	9th Grade	Semi-skilled
70- 79	10-6 to 11-11	Inferior	7th Grade	Routine Work
60- 69	9-0 to 10-5	Borderline deficient	5th Grade	Unskilled labor
50- 59	7-6 to 8-11	Deficient	3rd Grade	Simplest labor
Below 50	Below 7-6	Very Deficient	Special Class	Unemployable

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[2] Pressey, S. L. and Robinson, F. P., *Psychology and the New Education*. New York: Harper and Brothers, 1933, p. 89.

Summary of Intelligence Differences.

Intelligence is probably the most important single quality in determining the overall value of an individual. Intelligence has been defined in various ways but what it is can best be described by the behaviors that are considered to make up intelligence. Intelligence tests are designed to measure, quantitatively, these various behaviors.

Measurements of intelligence are expressed in several ways. The three most common measurements are the *Intelligence Quotient* (I.Q.), the *percentile score*, and the *standard score*. The I.Q. is the most common measurement but the percentile score and the standard score are more meaningful and useful expressions of intelligence measurements for adult groups.

Intelligence is a trait that varies with age. It increases in an individual to an age of from fourteen to twenty-three, levels off for several years and then gradually declines with further increase in age. The age at which mental maturity is reached varies for any individual and is an important factor in the individual's adjustment to life's situations during his formative years.

Intelligence varies in degree between individuals over a wide range. Even among those in the middle, or normal range, differences in overall mental ability are significant enough to establish ceilings of accomplishment in the academic and vocational fields.

Though there is a definite relationship between the

various primary mental abilities that make up intelligence in an individual, there are, nevertheless, significant differences in the degree to which some of these abilities are developed over others in most people.

Performance Differences

Performance in an individual describes no single trait or characteristic. It is a term that applies to complicated behavior resulting from many different aspects of what goes to make up a whole person. Performance is generally used to mean that which a man does - his actual behavior. It is the term most commonly used in referring to the manner in which he handles a particular job. How a man performs is a function of his intelligence, the characteristic just considered; his previous training and experience; his naturally endowed and developed physical traits such as reaction time and muscular coordination; his interest and his motivation.

If a large number of men were chosen at random, given equal training, and measures made of their performance on a job such as sending radio code, it could be expected that the best man would be about twice as proficient as the poorest man. Differences in individual characteristics accumulate to make great differences among people when behavior becomes complicated. Assuming equal training and experience in this random group, the variations in performance could only be attributed to individual differences.

These "built-in" differences are recognized as differences in ability. "Ability" and the related term "aptitude" need some definition before performance differences can be understood and appreciated.

"Aptitude" is defined in Warren's Dictionary as "a condition or set of characteristics regarded as symptomatic of an individual's ability to acquire with training some (usually specified) knowledge, skill, or set of responses such as the ability to speak a language, to produce music, etc."[1] Speaking of a person's aptitude for machinist work, or flying an airplane, or mathematics, refers to what performance may be expected in the future. His aptitude, however, is a present condition, a collection of traits that seem to indicate the field of his potentialities.

The "condition or set of characteristics" referred to in this definition is not inferred to be a natural endowment of the individual. Instead it refers to the facts about a person's aptitudes as they are at present, whether they be inborn characteristics, or capacities modified and developed by experience.

Aptitude, moreover, connotes more than potential ability in performance. It implies that a person can develop a liking or interest in the specified knowledge or skill. It does not, however, guarantee that this liking or interest will always follow.

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[1] Walter Van Dyke Bingham, Aptitudes and Aptitude Testing, Harper & Brothers, New York, 1937, p. 16.

> "The term 'ability' which occurs in the definition of aptitude, itself calls for comment. Ability means power to perform responsive acts. These acts may be complex coordinated movements, solutions of intellectual problems, discriminating judgments of appreciation, or other sorts of behavior - as, for instance, the maintenance of coolness and self-restraint under conditions of provocation or emergency. The amount of a person's ability in a given direction is ordinarily expressed in terms of the difficulty or complexity of the tasks he can perform, the number he can perform at specified levels of difficulty, or the speed and precision of his performance."

To summarize briefly the meanings of the terms "performance", "ability", and "aptitude": performance is what a man does now; ability is what a man is capable of doing now; aptitude refers to what a man may be able to do in the future with further training.

These meanings are important to keep in mind when considering individual differences. A man may be referred to as "lacking ability" in a certain task. It should be determined whether this description refers to his performance, which might be affected by a temporary physical condition; to a lack of motivation; or to his actual lack of ability in the performance of the particular task. When the terms ability or aptitude are used it must be remembered that these are specific, not general descriptive terms about an individual. People do not merely have great ability or great aptitude. They have ability or aptitude for a particular knowledge or skill. In choosing people for a particular type of training, such as flight training, it is more

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[1] Ibid. p. 19.

important to choose people who have aptitude for flying over those who have greater flying ability. Experience in the last war showed that flight applicants with no experience, but who tested high on the flight aptitude tests were more successful in training than those who tested lower in aptitude but who had demonstrated flying ability.

From the discussion of these terms it can be seen that of the three, "aptitude" is the most stable description of a man's behavior at a given task. While it is often desirable to know how a man can perform or what he can do (what his "ability" is) at a particular job, it is usually a difficult task to obtain reliable measures of these qualities. Ability can be measured only by getting the man to perform. The variables of interest and motivation can so affect performance that as a measurement of ability it may be of little value. Aptitude, on the other hand, is made up of many small traits and primary abilities - reaction time, vocabulary, mathematical ability, physical strength, output of energy, and many others, depending on the requirements of the particular task the aptitude is for. These traits and abilities are measured in a test situation, a situation usually conducive to good motivation. Consequently, due to a variety of items measured and good motivation, measurements of aptitudes are usually reliable. From such measurements an individual's best potential area of performance can often be determined.

The individual traits and abilities that are

associated with a particular aptitude each vary in the normal manner throughout the population. Within each individual they vary in strength and degree. Bingham in his chapter on "Theory of Aptitude", states:

> "Returning now to our first assumption, that there are important trait differences within the make-up of each individual, we find that the tendency of the abilities of individuals in a representative population to cluster around the average for that group is matched by a similar tendency for the different abilities of a single individual to cluster about his own average. When his abilities in mathematics, vocabulary, reaction time, output of energy, physical strength, grit, and many other traits are measured, it is found that in the majority of these respects his scores do not differ very greatly from his own central tendency. However, in some of his traits they do. The widest variations are apt to be in his various motor abilities which, indeed, bear but little relationship to each other. His different sensory and perceptual powers also do not tend to cluster as closely about his average as do his more complex and ordinarily much more important intellectual abilities. But here also, in certain respects he is deficient and in others he is superior, as compared with his average. Hull, after reviewing the evidence on this point, arrived at the conclusion that the average person's best capacities exceed his poorest by nearly twice as much as his poorest are above zero. That is to say, on a scale of vocational aptitude efficiency, his best potentialities are almost three times as good as his worst."[1]

Performance, then, as a function of aptitude, varies in degree for any task between individuals. The problem is to find those who have the particular aptitude which will realize the performance desired.

Individuals vary within themselves as to what tasks they can do best. The problem here is to find one's best aptitudes and assign him where they can best be utilized.

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[1] Ibid. p. 31.

Summary of Performance Differences

Performance should be thought of in terms of ability and aptitude.

If a man is to be chosen for a job to be done now, performance should be considered.

If a man is to be chosen for a job that will continue for a time, ability is the quality to be sought.

If a man is to be chosen for training or development in a job, aptitude is the quality to be sought.

Social Differences

What social differences are.

Broadly speaking, social differences are those arising out of environments that can be identified as common to certain groups or divisions of the population. The variety of ways in which the population could be divided to meet this condition are many. When such terms as "working class", "white collar class", "the farm population" or even "business man" are used they refer to divisions of the population which have certain common characteristics. Members included within these groups are assumed to have more in common that the quality indicated by their classification - The "working class", for instance, are assumed to have common attitudes such as pro-unionism and anti-monopolism; their level of culture is supposed to be lower than that, say, of the "white collar class"; the level of aspiration for themselves and their children tends to be limited; their

interests are supposed to lean heavily towards sports and hobbies rather than literature and the arts. These are some of the characteristics that are identified with the environment of those who work with their hands for their daily living. While such broad classifications do have some validity in differentiating between population groups they are based on popular and often erroneous generalizations. Sociologists have recognized other population divisions and identified them with certain characteristics on the basis of scientific research. Those that will be discussed here are chosen because it is felt they have greater application to the understanding of the naval enlisted population than other equally important divisions. The social characteristics thought to be common to the following population groups are covered:

(a) Lower and Middle Social Classes.

(b) Groups from different geographical areas.

(c) Racial and Minority groups.

(d) Rural and Urban populations.

(e) Products of broken homes.

It would be erroneous to assume that the features of environment found common to a group would produce identical characteristics in all its members. Should any of the above population divisions be measured for most common traits, abilities, or attitudes the scores would be found distributed in a fairly normal manner. There would be a few scoring at the extremes of the distribution with the

majority clustered about the mean or average for the group. In certain traits however there would be found a "skewed" distribution - a grouping of scores significantly above or below the mean for the total population. This would be an indication that within this particular group there existed common tendencies. A test to determine literary knowledge administered to the "Professional" and to the "Semi-skilled" occupational groups would result in two skewed distributions, one negatively and the other positively skewed. An attitude survey to determine degree of sympathy with union aims applied to the "Proprietor-Manager" and the "Craftsmen and Skilled Labor" economic groups would bring skewed distributions in opposite directions. In other words each group, though including the extremes of any characteristic, will have one or more traits which differ markedly from that found normal for the total population. These characteristic deviations from the normal are those to be discussed.

Differences Between Lower and Middle Classes.

A representative poll recently taken revealed the fact that ninety-four per cent of the American population considered themselves members of the middle class. People, it seems, are reluctant to identify themselves with either the lower or the upper social classes. That such divisions of the population do exist cannot be doubted. Every complex society has its own kind of social hierarchy and this country is no exception. Researches have been conducted in the East, South, and Midwest which shed some light on our social

system. They have identified the hallmarks that determine an individual's membership in one of the three main social divisions of the population - the lower, middle, and upper classes. For the purpose of this discussion only the first two are considered. Neither the characteristics of individual members of the upper class nor the reasons which give them their status are significant for the purpose of this discussion.

The lower class of the social order usually have these features in common: poor housing located in undesirable sections of the city or town - "on the wrong side of the tracks"; unskilled or semi-skilled occupations; most frequent unemployment; high rate of arrest, especially among the adolescent members; exclusion from or avoidance of most social organizations and societies. Lastly, this class has the highest percentage of people of foreign extraction.

The middle class has the broadest range of status-determining features. In general, middle class people live in medium to small-sized homes located in better sections of the city but not the best; their occupations are of the skilled, clerical, or small proprietor-manager category; they belong to civic and fraternal organizations and are active in church groups; their property holdings are modest but considerably greater than those of the lower class.

These are merely the visible features which place individuals or families in the social order. Their social and personal characteristics are of far greater importance

and interest.

The list of group traits that school administrators associate with the lower class is as follows:

1. Dirtiness
2. Uncouth and aggressive language
3. Fighting
4. Ganging
5. Sexual precocity (from the middle-class age norms)
6. Marring school property
7. Wearing "zoot suits", - and other types of clothing and make-up associated with groups of low status

The author of this list adds:

> "Thus the criticisms made by teachers of lower class pupils are directed at violations of the basic middle-class controls against uncleanliness, verbal and manual aggressiveness, early sexual relations, lack of respect for property, and against certain lower-class symbols."[1]

In regard to attitudes and ambitions the lower class have certain common tendencies. These are probably the most important aspects to be understood and recognized as they are the key to the individual's behavior. The following gives a most pertinent insight into this problem:

> "With regard to the school, these lower-class people show different behavior and express different ambitions from middle-class people. With few exceptions, parents place little or no pressure upon children for school achievement. They themselves have finished only two or three grades in

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[1] Hilda Taba and William Van Til, Democratic Human Relations, Sixteenth Yearbook of the National Council for Social Studies, 1945, p. 275.

> school, and their goal for their children is usually completion of eight or nine grades. After the first year or two of high school, parents consider further schooling impractical. Recently in California, all groups of Mexican-American pupils stated to me that the majority of their parents had no interest in their school work, nor even in their report cards.
>
> Since the economic, occupational, and social goals of lower class parents are quite different from those of middle class people, the under-privileged child receives little stimulation or training for successful school work. The child sets his goal a little beyond that of his relatives or neighbors of the older generation. When he has bettered their work, his prestige drive is extinguished."[1]

While these observations are of children of school age it cannot be doubted that the same traits which are characteristic of them at this stage will carry over into adult life.

The great proportion of the population that comprise the middle-class have such a wide variety of behaviors, attitudes and social standards that it is almost impossible to make up a list of identifying traits that are common to this entire section of the population. Associated with the middle-class however are these few characteristics.

1. Strict discipline in personal and social behavior.
2. A "built-in" desire for achievement.
3. Tendencies toward emotional instability due to fear of failure in meeting their own expectations or those of others for them.
4. High educational expectations.

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[1] *Ibid.* p. 274.

5. Greater respect for authority, parental and out-of-home.

6. Instilled regard for cleanliness and personal modesty.

The lower and middle classes then are seen as differing widely in many of the aspects of life that are important to acceptance in and adjustment to social situations. The average middle-class youth would be outraged if forced into a typical lower-class group with its often time unsanitary environment, earthy attitudes toward sex and physical functions, and their lack of restraint in the expression of their emotions. On the other hand a lower-class person forced into middle-class company would find it difficult to find acceptance there. His actions and speech would draw continuous disapproval and disdain. Adjustment to middle-class standards would require great individual effort and could be accomplished only at cost to his well being and personality. Wherever mixture of individuals from these two classes takes place some friction and complications can be expected to exist.

Geographical Differences.

The characteristics of populations from different regions of the United States vary significantly in only a few categories. The social system of classes are found pervasive in all localities with differences only in definiteness of demarkation between classes and in the degree of social mobility that is possible. In general there is a culture common to the whole population which is the unique

possession of the U. S. citizen. The differences that can be found are due to the topographical features of the area, the type of industry or occupations it affords, the degree of stability of the population, and certain social mores arising out of the history of the particular section of the country. Some of the most prominent characteristics of individuals that can be identified with their geographical origins are:

1. Kind of occupational experience.
2. Adaptability to new situations.
3. Attitude and prejudices toward minority groups, especially the negro.

Occupations peculiar to certain regions are few but there are some significant concentrations: industry and manufacturing in the North-east and Great Lakes Regions; seafaring and fishing on the East and West coasts, and agricultural occupations prevailing in all Southern states from coast to coast.

The Far West and certain sections of the Southwest have growing and mobile populations. People are accustomed to and frequently eager for change. Their environment prepares them and aids them in adjusting to new situations. In the Mid-west and particularly along the Eastern seaboard the population is adjusted to a stable social order and environment. People from these regions tend to resist change and prefer to live as they find themselves.

The most important inheritance from geographical

origin is the attitude a population acquires toward minority groups. Only one minority group is fixed in a permanently inferior position and that is the American negro. The attitude of social disapproval toward the negro is uniform and intense among those from the Southern sections of the country. Many people from other sections share this feeling and avoid social contacts with the negro but can accept him in the work situation at least.

Problems of Racial and Minority Groups.

To understand the problems of racial and minority groups one must understand how they differ from the rest of the population and what the effects of these differences are on those outside their own group.

First, one common misconception should be discounted - that social, moral, and intelligence differences are results of racial inheritance. One educator, feeling rather strongly on this subject, says:

> "The modern cant which seeks to relate 'race' to social and physical behavior, to a people's culture, or morals, or intelligence is the most destructive social force in our civilization. There is not one shred of scientific proof for this myth. On the contrary, all of the pertinent scientific evidence from the fields of child development, psychology, sociology, and cultural anthropology points clearly to the fact that the behavior of all normal men results chiefly from their social and economic environments. Morals, values, and methods of child-rearing are the results of the cultural and economic environments of the individual or group."[1]

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[1] Ibid., p. 264.

Granting that the behaviors and characteristics of minority groups arise not from heredity but from environment, what are these differences and how do they conflict with the "American" culture?

Racial groups, other than negro, demonstrate no recognizable differences other than those physical features characteristic of their race. The Chinese and Japanese-Americans quickly adopt American middle-class ways, do well in school and, in general, win acceptance and economic security without undue discrimination being exercised against them. The smallness of their number in proportion to the total population prevents their becoming a greater social problem.

Minority groups - members of religious sects and those of foreign extraction - are distinguished by few recognizable differences. Individual members win acceptance into American life on personal merits and conformity with the standards of the social class their economic status qualifies them for. With new immigration of foreigners so limited the "foreign" population does not pose the social problem it did in past years.

The negro population is the one greatest social problem of our nation. That their treatment is not compatible with the tenets of constitutional democracy is obvious. That discrimination exists in a more or less intense form in all parts of the country cannot be denied. That the problems involved are complex and impossible of immediate

solution is generally accepted. What are the characteristics of the negro that, besides his color, set him apart from the rest of the population?

In general his characteristics are those of the lower-class white population - uncleanliness, aggressiveness, lack of respect for property, loose morals, and lack of ambition. There are these further differences:

1. Being barred from advancement to higher occupations regardless of ability, they engage in crime and violence more commonly than do their class equals in the white population.
2. The squalor and degradation resulting from segregation to the worst living areas seems to remove all moral inhibitions against stealing. Stealing is as natural to the average urban negro as raiding the cookie jar is to the average middle-class youth.
3. The awareness of discrimination due to his skin color is a constant influence on the negro from his earliest years. It often prevents the development of self-respect and destroys ambitions to learn or to advance. To him it is useless to struggle against a restricting factor beyond all human ability to remove.

Thus the American negro presents a unique and persistent social problem. He cannot be changed until the

white population changes its attitude toward him. To understand the negro's actions and attitudes, we must examine the causes that shaped them.

Differences Between Rural and Urban Populations.

The United States Census has defined all incorporated places with a population of 2,500 and over as urban and all others, with few exceptions, as rural. This characterization of a community as urban on the basis of size alone, however, is arbitrary. At different times the dividing line between urban and rural, city and country, has been set at different population figures. Since this discussion is concerned with the characteristics of the people from these two modes of life rather than the types of physical entities that make up rural and urban living, the choice of a dividing line is not of great importance.

A brief comparison of the ways of life that are common to the city and the country may help in understanding the differences that are manifested between the urban and the rural residents.

> "City and country are not merely distinct types of physical entities, they are also contrasting modes of life. Life on the farm or in rural areas is relatively stable and simple compared with life in the city. Rural life is close to nature, relatively isolated, uncomplicated by advanced technology, and self sufficient. The rural community involves few people and these few are much alike in their origins, their occupations, and their ways of living. Rural society rests upon intimate associations. It is held together by rumor, gossip, personal controls, and a common culture.
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> City life on the other hand is carried on remote from nature in a highly complex man-made

> technological environment. The city is interdependent and in close contact with the outside world. It gives rise to a great division of labor. The urban community consists of great numbers of heterogeneous persons both as to origins, occupations, and ways of living. Although densely crowded together, people in the city do not rely upon intimate associations with all of those who live near them to carry on an orderly life. The inhabitants of a city are held together by news and publicity, by formal laws, and by impersonal controls. In contrast with life in the country, urban life is characterized by complexity, instability, and indirect interrelations."[1]

A statistical fact from the census data adds still another factor that effects both urban and rural populations, but in different ways. Rural populations are more than reproducing themselves while urban populations barely maintain their numbers by their birth rate. Aggravating the rural situation is the additional effect of increased mechanization in agriculture. Fewer and fewer people are required to keep the same amount of land under cultivation. In the city increased concentration of industry and expansion of the service and clerical occupations have created demands for greater numbers of workers than urban populations produce. The result is a forced migration of rural youth from their homes to urban areas where greater opportunity exists. The competition for jobs in the cities between rural and urban youth is a growing problem which has highlighted still another difference between these two

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[1] Louis J. Wirth, Urban and Rural Living Problems In American Life; Unit No. 21, National Education Association, Wash. D. C., 1944, p. 7.

population groups - that of educational opportunity.

It is in the field of education - its quality, versatility and degree of attainment, that great disparity exists between city and country. The situation is clearly stated in the following paragraph.

> "Education in the country has been traditionally associated with the little red school house. Compared with the elaborate highly differentiated and specialized educational services of the great city, rural education has been relatively primative. The school year generally is shorter; teachers are less well trained and more poorly paid; physical facilities and educational services are more meager; less recognition can be given the unusual pupil, either backward or gifted; fewer children continue their education to the secondary and higher levels; and experimentation with new methods, curriculum, innovations, and new educational functions is difficult to accomplish or is frowned upon. While the school in the country may serve more of a community function than in the city, its capacity to serve the community is more limited."[1]

With these differences in background between the residents of rural and urban areas in mind a few of the obvious differences existing between individuals from the two environments can be surmised. The rural youth can be expected to have some of the following characteristics and attitudes not found in his contemporary from the city:

1. A generally poorer education, both in the quality and quite probably in the grade level of achievement.
2. A narrower range of experiences and interests - especially in the more technical vocational areas.

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[1] *Ibid*. p. 30.

3. A tendency to be dependent on well established, close personal relationships with contemporaries for well-being and happiness.
4. Close attachments to home and community.
5. Counteracting this close attachment to home, the urge to move - to find better fields of opportunity, a willingness to find and adjust to new situations and environments.

The city youth has some distinctive traits that are clearly outgrowths of his urban environment.

1. A generally better and higher level of education. City schools have greater variety of curricula and the truancy laws are more strict and rigidly enforced.
2. Greater vocational experience, both from school instruction and job experiences.
3. A more aggressive and competitive attitude in work and in recreational activities.
4. Adaptability to changing environments and companions - less dependence on personal relationships for satisfaction but more dependence on group attachments for feelings of security.
5. Possibly a more intimate acquaintance with law enforcement agencies, either from personal experience or close observation.
6. Usually a less wholesome and stable emotional adjustment to life.

7. Sophistication, "cockiness", and a know-it-all attitude.

Though some of these differentiating characteristics seem inconsequential, when added together in an individual they definitely influence the manner in which he reacts to different situations. The youth from the country might fear and rebel against assignment to Shore Patrol, while a product of the big city would revel in such duty. City and country youth respond to discipline and leadership in different ways. They can be motivated by different means. Solutions to their personal problems are often found by delving into the values and attitudes they acquired in their rural or urban environments.

Characteristics of Products from Broken Homes.

There is slight justification for treating as a distinct division of the general population those individuals who happen to be reared in homes broken by death, divorce or desertion. What few scientific studies have been made of children of broken homes do not reveal any startling deviations from the normal. While such investigations have shown that the broken-home products tend to be at a disadvantage as to intellectual attainment, psychological adjustment, and certain character traits such as honesty and cooperation, the differences between matched groups of normal-home children are so small as to be barely significant.

If this discussion were concerned with only the general population there would be no section dealing with

broken-home products. It is the naval enlisted population that is being considered, however. With this selected population the broken-home factor seems to have definite significance. The Research Section of the Bureau of Naval Personnel has made a number of preliminary surveys of incoming recruits which indicate that an abnormally large percentage of youths from broken-homes are motivated to join the navy - that their decision was largely influenced by their dissatisfaction with the home situation. The navy then seems to catch a selected sample of a selected portion of the general population. The selective factor seems to be dissatisfaction with their broken-home situation. If there are deleterious effects of a broken home upon children, then the navy would naturally receive the more drastically affected - since dissatisfaction is an indication of maladjustment and maladjustment in the home produces recognized deficiences in the whole personality of an individual.

Conclusive support to the above statement would require a statistically sound comparison of matched groups of naval personnel from normal and broken homes. Lacking this, the few differences between the normal home and the broken-home children found in investigations of the general population will be listed, followed by a discussion of what further characteristics may be expected among the broken-home naval enlisted men.

First here is the investigators analysis of the broken-home situation:

> "In its biological sense the normal home is a complete organism in itself, implying the existence within its territory of a standardized set of personalities. The child living in a normal home, though usually unaware of the fact, is permeated with the wholesome feeling of belonging to an intact protective group. On the other hand, it is reasonable to suppose that the child of a broken home is constantly aware of the fact that he belongs to an impaired organism, and that he is therefore irrevocably "different" from other children. This awareness may lead to emotional disturbances and mental hygiene, even in cases where the status of the family did not change in any other way after the fatal impairment of the home. From this point of view, the child may, hypothetically develop a chronic depressive feeling of "brokenness", inferiority, insufficiency, precariousness, insecurity. He develops a predelection toward "functional" disturbances, despondency, extreme cynicism, apathy, excessive day dreaming, and the like. . . . . Hypothetically, children of broken homes may from that standpoint develop faulty character, expressing itself especially in wrong attitudes toward society, inferior techniques of getting along with others, defective standards of honesty and deportment, and so on."[1]

In his summary of results Wallenstien lists those differences, or tendencies toward differences, which he found and statistically validated between normal and broken-home children:

1. Broken-home children are retarded in school in comparison to normal-home children.
2. The mean I.Q. is lower for broken-home children.
3. Broken-home children tend to be in the lower socio-economic status.

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[1] Nehemian Wallenstien, Character and Personality of Children From Broken Homes, Teachers College Contributions to Education No. 721, Teachers College, Columbia University, 1937 pp. 2 and 3.

4. On tests of honesty and truthfulness the broken-home students were found definitely inferior to the normal-home product.
5. On the emotionality or neurotic tendency test the broken-home group were definitely at a disadvantage.
6. Measures of self-confidence and leadership ability found the broken-home group inferior.[1]

In addition to these more or less reliable characteristics of broken-home youth there are a few which, though unsubstantiated, can be reasonably expected in the enlisted man from a disintegrated home environment.

1. Chronic dissatisfaction - Maladjustment being the normal state for the broken-home boy who joins up to "get away from it all." He will tend to have difficulty in adjusting to the situation he finds himself in. He will tend to blame circumstances for what is really a mental state of insecurity and insufficiency.
2. Disciplinary problems - the lack of cooperativeness and the tendency toward wrong attitudes characteristic of the products of broken homes is a part of the predisposition to break regulations and to get into trouble.

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[1] *Ibid*. p. 81.

Differences In Personality

Personality, if it can be classed as a human trait, is certainly the most complex trait possessed by man. It has already been said that the more complex a function, the more variable it is and personality is no exception. Personality is made up of many factors. It is, in a sense, the sum total of man's traits, characteristics and modes of behavior. It is a word used to describe the whole man.

People have always been aware of differences in personality and are seldom at a loss to describe the consistencies in behavior qualities of individuals with whom they come in contact. Most such descriptions are made, however, without any clear notion of what these behaviorisms are or of just what constitutes these qualities. Not only is there a general lack of understanding of the causative factors that shape personality but there is an unfamiliarity with the standard terminology which is used to describe traits and qualities of personality.

A trait can be said to be a consistence in behavior that sets one individual off from another. By closely observing any individual it is possible to find certain behaviors that recur again and again - behaviors that are characteristic of him.

> "This individual consistently takes the initiative in his social environment. He consistently imposes his will and his ideas on his fellows. He takes the lead whenever possible at parties, at games, in discussions. There is a consistency in his behavior and we create a name for it - dominance.

> This man's friend behaves in a way that seems almost diametrically opposite. He rarely takes the initiative, being ready to follow the lead of someone else. He gives in easily to outside pressure. He rarely imposes himself on other people. He does not oppose the social forces about him. If this is a consistent way of behavior, we need a construct to tie the specific behaviors together. We create the construct of submissiveness to describe his behavior. He is a submissive man."[1]

These are descriptions of behaviors in two individuals with the trait names that have been chosen to represent them. Can these men be differentiated from other individuals with less extreme deviations in behavior?

> "Everybody uses traits in talking about people. Everybody does not use them carefully. The careless use of traits leads to misunderstanding, poor diagnosis of behavior, poor prediction about what people will do or will not do. The careful use of traits can assist in understanding and dealing with people. To be justified in using a trait name we must be sure (a) that it refers to the actual behavior of the individual we're talking about, and (b) that the behavior is consistent behavior. Further, we should remember that traits are not black-white classifications. Just as we cannot put all people into either the bright class or the stupid class, we cannot force all people into the dominant class on one hand or the submissive class on the other. Most people are neither dominant or submissive, bright or dull, tall or short. Most people fall between the extremes of almost any continuum you care to think about. When we use the more common trait names, we are using continuums. We expect most people to fall somewhere between extreme dominance and extreme submissiveness."[2]

A personality can seldom be described by one trait name. The total personality of an individual is actually a

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[1] "Solving Problems: Science of Human Relations", Pamphlet, author unknown, p. 14.

[2] *Ibid*.

complex, organized pattern of traits. To characterize a man's adjustment to life it is necessary to describe many traits and look into the manner in which they are organized. One man may be more submissive than another, but due to a higher level of intelligence (another trait) may have more influence on his companions than the more dominant but less intellectual individual. To be able to describe or understand anyone's whole personality one must know and understand a great many human traits. The following are some of the more common trait names and the behaviors they refer to:

> "Introversion-Extroversion. Introversion is used to mean a preference for the imaginal world, a leaning toward the subjective and delicate, a tendency to go in for self-analysis and self-criticism. It means a tendency to take things personally. Extroversion, on the other end of the continuum, means a preference for "outside" practical affairs. Where the introvert goes in for fantasy, the extrovert goes in for action. Extroversion means natural and spontaneous expression, lack of self-consciousness, independence of the opinion of others, toughmindedness. Most people can be placed somewhere between the two extremes of this continuum.
>
> Gregariousness-Solitariness. Gregariousness means a tendency to be with people, to seek out social groups, to avoid solitariness. Solitariness, simply enough, is just the opposite - a tendency to avoid groups, a preference for being alone.
>
> Social Intelligence. Social Intelligence refers to the ability to do the right thing in social relationships - the ability to make people feel at home or at ease, the ability to sense how people are feeling and to do something socially sensible about their feelings. It is knowing when to belch heartily in dining with Eskimos, when not to belch when dining with an American hostess. It is knowing how an enlisted

> man feels when he is on the "carpet" and what to do to produce in the man the behavior you deem desirable.
>
> *Self-assurance and Self-distrust*. Self-assurance means a tendency to rate one's own abilities high, to be sure of oneself in a wide variety of situations, to have a good opinion of one's own abilities and potentialities. Self-distrust means diffidence, a doubting of oneself, a general unsureness about the adequacy of one's own behavior. Though the amount of self-assurance or self-distrust may vary from one situation to another, there is evidence that some people are consistently more self-assured than are others.
>
> *Persistence and Vacillation*. Persistence means a tendency to stick to a job, a doggedness, a tendency to keep on going in the face of discomfort or hardship, a withstanding of criticism, a tendency to finish the job. In everyday language the persistent man is said to have "strong will" or "guts". Vacillation is the diametric opposite - a flightiness and an irresolute or capricious way of behaving.
>
> *Broad Emotions* - *Narrow Emotions*. This dimension of behavior is an example of a temperamental trait, a trait rooted in the basic physiology of the individual. Some people apparently get emotional about a broad variety of things. A large range of things or situations will set them off into either pleasant or unpleasant emotional response. The person with narrow emotions, on the other hand, gets emotional in relatively few situations, shows feelings on relatively rare occasions."[1]

With these few personality behaviors and their trait names in mind a brief summary of the factors that go into the development of personality is in order.

Personality, like all human characteristics, is a product of the two primary factors in individuality, heredity and environment. There exists a divergence of opinion as to which of these plays the major role in producing the full

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[1] *Ibid.* p. 15.

flowered personality of the adult. Again there are sound arguments on both sides - and again the most logical and most widely accepted opinion is that personality is a function of both, with neither having a clear dominance.

The innate side of personality lies in two main areas - the varying strengths of the primary needs with which an individual is born and the degree of balance or unbalance of the individual's "glandular constitution."

Man has many needs and propensities in common. Names have been given most of them: hunger, thirst, sex, sleep, social companionship, aggressiveness, and many more. Which of these are primary or innate, and which are acquired or developed needs or propensities has not been determined with any degree of certainty. Some scientists list as many as eighteen major "instincts" while others accept no more than three or four. The most dependable primary needs are those of (1) hunger, (2) thirst, (3) the need for rest and sleep, (4) the need for activity, (5) esthetic needs (interests in sights and sounds), (6) the organic requirements such as breathing and elimination, and (7) sex. All other needs are derived, learned, or acquired needs: parental love, gregariousness, need for power and prestige, desire for property, all are absorbed from the social environment an individual's culture provides.

These primary needs vary in strength in the individual. A child may be born with a strong desire for food or he may be a naturally light eater. His earliest behavior

begins to be formed by the drives aroused by these needs. He may be active or tend to be inert. His mental and physical development and the reactions he elicits from others are shaped by the behavior this need arouses. As the child grows and adds more and more of the needs from the derived list to his original needs his behavior habits begin to form into personality traits - traits which had their earliest influence from the character of the individual's primary needs.

The system of endocrine glands in the human body is known to produce certain deviations in personality. If an individual's "glandular constitution" is in balance, no traits can be traced to glandular origin, but over- or under-activity on the part of certain glands produces definite and consistent personality abberations. Under-activity of the thyroid gland, hypothyrodism, is associated with poor mental and physical growth, lethargy and low emotional level. Extreme cases of hypothyroidism is manifested by dwarfism and intelligence at the moron level. Over-activity of this gland, hyperthyroidism, produces excitability, restlessness, and "broad emotions." Other glands that influence personality by their abnormal activity are the pitituary and sex glands. The pitituary influences the mental and physical aspects of personality whereas the action of the sex glands operate in the emotional and social areas. Other glands may have their own particular influence on personality but science has thus far been unable to associate more than these

three with definite traits or behaviors.

Only a brief reference can be made to the broadest field of all - the influence of environmental factors on personality. It must suffice to say that the physical propensities of any normal person are usually less influential in producing the final personality than that of the environment he grows up in. His place in the family, his economic status, the ambitions of his parents for him, the successes and failures he undergoes in growing up, all determine the way in which he will react to life's situations.

Summary of Personality Differences

Personality is the term used to describe the whole individual. It is expressed in various terms that describe the ways in which he reacts to his environment.

People can seldom be described by one personality trait name. They possess many traits to varying degree. They are best understood by examination of the organized pattern of traits they possess.

The determining factors of personality are physiological and environmental. Environment is considered to be the most influential factor in determining personality characteristics in normal individuals.

CHAPTER II

THE NAVAL ENLISTED POPULATION

Introduction

The relatively lengthy treatment of the subject of individual differences in the last chapter should provide the background necessary for the consideration of the differences and characteristics of the naval enlisted population. We have seen how people differ in physical characteristics, intelligence, social attributes, and in the innumerable aspects of personality. We know something of how these differences are distributed, and the means used to measure and compare the traits of individuals. It has been pointed out that the naval enlisted population is a selected population - that this fact may cause the average measurement of any trait or characteristic of enlisted men to vary from that found for the total population. In order to understand the individual enlisted man it would be well to examine just what the selective factors are that operate to make him differ from the population in general.

The Navy has established certain minimum requirements for acceptance to enlisted service. Briefly these requirements are:

(a) Intelligence requirements:

Minimum score on the Applicants Qualification List of 40. (Raised to 45 on July 15, 1948.) This score is roughly equivalent to an I.Q. of 80, thus, using the normal curve data, excluding about 16 per cent of the population from candidacy.

(b) Physical requirements:

Height and weight: Height minimum - 60 inches, maximum - 78 inches; weight appropriate with height.

Vision: 2/20 correctable to 20/20. (Color blindness not disqualifying.)

Hearing: Pass standard "coin-click" test.

(c) Record clear of criminal offenses.

These requirements eliminate approximately one-fourth of all applicants.

In addition to these legal requirements which set minimums to exclude the lower performers in the population, there are factors which operate to eliminate or discourage those of higher levels of ability from joining the ranks of enlisted men.

(a) The social and economic status of enlisted men is lower, though falsely so, than that of his economic running-mate in civilian life. This fact tends to discourage men who see civilian opportunity as of equal or even less attractiveness than the navy has to offer.

(b) The general unpopularity of military life during peacetime operates to make enlisted service unacceptable to the average to superior youth as a career choice.

These factors, the legal requirements tending to eliminate the least qualified in the population and the socio-economic factors tending to discourage the best qualified men, are influenced by certain other conditions. During war time, of course, the draft nullifies to some extent the social and economic factors. Better qualified men are obtained from those who fail or decline to qualify for officer status or important civilian defense positions. The demands of full mobilization necessitate also the lowering of the minimum intellectual and physical requirements. Total mobilization thus tends to broaden the range of talent taken into the navy. Economic conditions also affect the operation of the selective factors. In boom times, with civilian opportunities at a maximum, the navy must compete with the attractiveness of civilian life and high pay. The quality of recruits then falls to well below the average for the total population. Economic depression has a reverse effect. Lack of opportunity in the civilian economy sends more and better qualified men to the recruiter. Quotas are oversubscribed and only the most highly qualified are accepted. The quality of naval inductees then swings to well above that for the whole population.

Within any one year the quality of incoming enlisted men varies. The month of July, following the end of the school year, brings greater intellectual as well as all-around ability. The remainder of the year seems to be a more or less difficult period for recruiters, since the quality of recruits, as indicated by their General Classification Test scores, drops sharply following the summer period.

With the varying quality of incoming recruit in mind we can briefly consider what range of qualities can be found in the naval enlisted men today. We must assume that the knowledge we have of the recruit is applicable, in general, to the total enlisted population. He is the rated man and Chief Petty Officer of tomorrow and will differ only slightly, for the better it is hoped, from those who have preceded him. The following information was compiled by the Research Section of the Bureau of Naval Personnel by means of a special questionnaire.

Distribution

Age of Recruits

Data on ages of recruits

73% are 17 years
22% are 18 years
3% are 19 years
.6% are 20 years
1.2% are 21 and over

Restated in different terms, these recruits are not, truly speaking, men just yet. Thus they will think,

feel, and act in ways characteristic of and dependent upon this fact.

They are still immature - immature emotionally, vocationally, physically, educationally, and in about all ways that distinguish the adult from the youth.

The implication of this immaturity should be realized and adequately met. An adolescent is a pliable and impressionable human. Handled correctly, properly motivated and exposed to scientific training and education, he can be made into a valuable asset to the navy. Neglected or, perhaps, treat erroneously as a backward adult, his development and attitudes may easily be warped beyond all usefulness to the service.

Educational Achievement.

Data on 30,714 recruits over the period December, 1946, to February, 1948, showed the mean level of 9.76 school years completed. Only 22.7 per cent of these men completed high school.

The popular concept of the "American Way of Life" includes schooling either through the age of 18 or through high school.

The typical recruit does not fit this concept. He neither finished high school nor went through his eighteenth year. For at least during the period of this survey, somewhere around the age of 16 to 17, or the first or second year of high school, he apparently comes to feel that staying on in school is not a satisfactory contribution to the solution

of his problems. Whatever his problems may be, additional years of the same kind of schooling, or schooling under the same conditions, doesn't seem to fit in.

For many recruits the break in schooling is a plain matter of economics. They may have been doing well enough but the family income was such that further schooling could not be afforded. From this group the Navy draws its best talent.

For the greater percentage, however, school and its curriculum just didn't seem to contribute sufficiently towards a career. The answers to the survey questionnaire indicate that they weren't interested in school, that they weren't doing well or that they weren't getting out of school what they wanted.

In the cases of those from rural areas the last is not surprising. The smaller communities cannot offer a wide diversification of programs in either straight academic or trades training. The narrow limitations in opportunity offered in rural communities forces a large proportion of rural youth to look elsewhere for new fields and for training and education to qualify them for occupations not offered by their home community. Many rural youth who join the navy expect to find both the training and opportunity not available to them at home.

It is clear from this data that the navy, to obtain qualified men for its increasingly complex and highly technical jobs, must emphasize training and education to the

utmost.

Intelligence and Aptitude.

The navy gives all recruits a basic test battery early in their indoctrination period. On the performance of individuals on these tests is based their classification and assignment to the various special occupations, or ratings, and to the several service schools for further education and training. The tests of the battery are essentially aptitude tests - they are designed to measure the potentialities of recruits. The battery consists of the following tests:

(1) General Classification Test
(2) Arithmetical Reasoning Test
(3) Clerical Aptitude Test
(4) Mechanical Aptitude Test

The General Classification Test is an intelligence test - it measures ability to learn, to think, to understand instructions and to solve new problems. It has been found to be the most valid test of all round ability and worth. It correlates very highly with the intelligence tests given in civilian educational institutions. The median score of 50 on the G.C.T. corresponds closely with the Stanford-Binet I.Q. score of 100.

The Arithmetical Reasoning Test is designed to measure computational accuracy, and ability to use numbers in practical problems. It is important for the selection of men for such technical service schools as fire controlman, electronic technician and other classifications requiring

arithmetical and mathematical ability.

The Clerical Aptitude Test measures speed and accuracy in performing clerical work. It consists of items requiring the rapid and accurate checking of (1) numbers, (2) names (for spelling, punctuation, etc.), and (3) the arranging of words in alphabetical order. Such items clearly do not test clerical ability, which would include typing, writing, filing, etc., but test, rather, the basic tasks found in clerical work. Scores made indicate potential ability to do clerical work - or aptitude. The G.C.T. has been found a more valuable predicting device than the Clerical Aptitude Test for success in the yeoman rate. However the two tests combined provide an excellent measure of clerical aptitude.

The Mechanical Aptitude Test is intended to measure potential ability for work of a mechanical nature. It is essentially a test of familiarity with mechanical tools, fundamentals of physics, and mechanical operations.

The following data is a summarization of test battery results over the period December, 1946, to February, 1948, on approximately 55,500 recruits.

Test	Mean Navy Standard Score
General Classification	47.47
Arithmetical Reasoning	47.86
Mechanical Aptitude	48.40
Clerical Aptitude	50.45

It can be seen that the typical, or average, recruit during this period is slightly below the ability level of the average for the total population in all but clerical aptitude. If we consider the normal curve we can see that this means merely that the men of superior ability are scarcer, though still present, while the number of men of marginally low ability is greater.

Fortunately there are factors operating in the service which tend to eliminate those of lowest ability. Competition for promotion to the petty officer rates discourages those who fail to progress with normal speed. Also, the failure of the most inept to adjust to life in the navy causes them to leave the service at the earliest opportunity. A recent survey showed that the G.C.T. scores are well above the mean of 50 for petty officers in most ratings - contrasting sharply with the below average scores for incoming recruits. Furthermore the average scores tend to increase with the higher pay grades.

Community Background.

Data on the home-town size of recruits revealed the following:

30.9 per cent came from rural areas; farms, or villages of less than 2500 population.

32.1 per cent came from towns from 2500 to 25,000 population.

37.0 per cent came from cities above 25,000 population.

These youth from rural and urban areas have essentially the same differentiating characteristics of their counterparts in civilian life. The Research Section has this to say about the community background of the recruits they surveyed:

> "By and large, the recruits are 'small-towners'. They derive mostly from rural areas or the smaller cities under 25,000 population. Of those who come from the larger cities, the major proportion by far, spring from the less favored socioeconomic levels.
>
> Whether from the more rural or more urban areas, the recruits (or if preferred, the youth who become recruits) seem to share a feeling that their opportunities for self-development are limited. They seem to feel they have to get away from their own environment, go away to some different place where the pastures are greener and greater opportunities await, where travel and adventure beckon.
>
> They want to get away from school; from work or lack of work; from the dullness, or drabness, or lack of excitement and lack of things to do, whether that be on the city streets or the farm makes little difference; get away from quarreling families; get away from families where lack of money makes living conditions unpleasant; get away from wherever they may be.
>
> And for the future, they just don't see that their home community, whether rural or urban, offers them the opportunity they want, they see only a dead end ahead by staying any longer.
>
> In short, the recruits are those who have problems they cannot satisfactorily meet in their home communities."

Geographical Origins

A last category that can be considered is that of geographical origin. Little concrete information is available

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[1] Bureau of Naval Personnel, Field Research Section, *Attitude Toward Enlisting - Report No. 1*, October, 1947.

on just what differentiating characteristics exist between youth from different sections of the country. It is suspected by some that considerable variance exists. One naval officer wrote:

> "It has been told that during the early days of World War II, a disparity was noted between the results of flight training on the east and west coasts. At the eastern training stations, eighteen per cent of the candidates who successfully completed the ground school subsequently failed to qualify as pilots. In the western states, only nine per cent failed. Investigation disclosed no variance in training procedure, equipment, or instructors. Psychological examination of candidates produced the information sought. West of the Mississippi River the candidates came from pioneer stock. Many of them could recall stories of Indian fights told by their parents or grandparents. These candidates were on the way up with lots to gain and little to lose. On the contrary, the eastern candidates came from a more assured, a more settled group. Unpopular as is the expression, they were 'the Effete Easterners', they had less to gain and more to lose. They produced twice the failures in solo flight. This same sort of information concerning geographical distribution of quality caused the Executive Officer of the New Jersey to request that the recruits going into the crew of that vessel 'come from West to East across the top of the United States.'"[1]

Undoubtedly a professional sociologist would take some exception to the above statement. Students of that body of science require considerable evidence before such statements are considered justified. However important are the differences in quality or attitudes of men from different localities, some do exist and it is of some value to know the proportions of men in the navy from certain sections

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[1] Research in Applied Psychology, Selection and Training of Personnel Ashore and Afloat, Navy Letter, Serial 174, p. 12.

of the country. The following geographical divisions have been made arbitrarily, there being no guide to follow in dividing areas by suspected characteristics of populations. These divisions follow with the approximate percentage of the total enlisted population from each section:

Northeast Section------------------30.7 per cent
(East Coast States from Maine through Virginia)

Mid-west Section-------------------24.7 per cent
(Ohio and Kentucky on the east to Wyoming and Colorado on the west and north to the Canadian border.)

Southern Section-------------------27.3 per cent
(From the east coast, south of Virginia, across the southern section of the country to New Mexico)

Western Section--------------------14.6 per cent
(The western states of Washington, Oregon, California, Idaho, Nevada, Utah, Montana, and Arizona)

The foregoing information on the enlisted population has been group data - we have been speaking of averages and percentages. This has been presented, not to detract from the importance of considering each man as an individual, but rather to provide a framework within which the individual man can be more clearly seen for what he is - what his possibilities are. These data should lessen the tendency to complain so bitterly about the quality of the new men "in the last draft". Knowing what the sources of recruits are, what their average ability is for the whole navy, should make it clear that those new men are no worse and no better than could be expected. It should encourage a more hopeful and resourceful approach toward making the best possible men of them. Group data such as these should aid in setting

officers' expectations of enlisted men at their proper level and thus foster more tolerance, patience, and understanding.

Conclusion

Essentially this has been a study of human differences - individual differences. The question must arise, "Just how does understanding of individual differences help in administering personnel?" Obviously we have been using the knowledge of differences all along. Whenever we assign the biggest man to the heaviest work we are recognizing an individual difference; when we choose that "smart seaman" as a messenger or a yeoman striker we are recognizing an individual difference. When we look through a man's service record as he comes to Mast we are seeking further knowledge of his characteristics that differentiate him from others. Consideration of individual differences is one of our everyday duties in handling people.

What else does this knowledge gain us? If nothing else this discussion should have fostered a conviction that no two people are alike, that a solution of one man's personal problem is not likely to work for another. Knowledge of human differences can lessen the tendency to stereotype an individual, or to force him into a mould of one's own conception of what he should be or how he should behave. It is hoped the knowledge will help officers to see each individual in the light of what he knows about him (rather than what he guesses or surmises about him): his age, his

maturation level, the amount of schooling he has had, and his test battery scores; to withhold final judgment on an individual until he knows still more; his personal history; family status - intact or broken; social and economic class (as indicated by father's occupation); interests, as indicated by interest tests, hobbies, or, perhaps, by work experience. Individually these items of information mean little. Taken together, identified with the individual, they have much significance.

Most of the necessary information is included in each man's service record. The time and effort required to utilize this material will be more than justified in terms of results achieved. This study has attempted to indicate the major types of differences which exist among the naval enlisted population and to suggest the implications of such differences for effective personnel administration. It is hoped that this information will encourage the naval officer to further augment the recorded data on his men by applying the knowledge of individual differences in his day-to-day observation and evaluation of those whom he leads.

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